



Devon Energy

Lea Co., NM (Nad83 - East Zone)

Flagler 8 Fed

#20H

OH

Design: OH

End Of Well Report

16 October, 2019



Wellbenders End Of Well Report

Company: Devon Energy
Project: Lea Co., NM (Nad83 - East Zone)
Site: Flagler 8 Fed
Well: #20H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #20H
TVD Reference: RKB=30' @ 3476.00usft (Cactus 108)
MD Reference: RKB=30' @ 3476.00usft (Cactus 108)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WBDS_SQL_2

Project Lea Co., NM (Nad83 - East Zone)

Map System: US State Plane 1983
Geo Datum: North American Datum 1983
Map Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level

Site Flagler 8 Fed

Site Position:		Northing:	414,851.30 usft	Latitude:	32.138349
From:	Lat/Long	Easting:	769,983.95 usft	Longitude:	-103.594633
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	0.393 °

Well #20H

Well Position	+N/-S	0.00 usft	Northing:	415,051.86 usft	Latitude:	32.138899
	+E/-W	0.00 usft	Easting:	770,072.58 usft	Longitude:	-103.594343
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,446.00 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	9/13/2019	6.715	59.951	47,654.82372689

Design OH

Audit Notes:

Version: 1.0 **Phase:** ACTUAL **Tie On Depth:** 0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	359.66

Survey Program **Date** 10/16/2019

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
210.00	16,141.00	Survey #1 (OH)	MWD+IGRF	OWSG MWD + IGRF or WMM



Wellbenders

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MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	CL (usft)	CL Azi (°)	DLeg (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
210.00	1.23	118.65	209.98	-1.08	1.98	-1.09	210.00	118.65	0.59
271.00	1.14	121.81	270.97	-1.71	3.07	-1.73	61.00	120.17	0.18
364.00	0.92	132.36	363.96	-2.71	4.41	-2.73	93.00	126.52	0.31
456.00	0.79	144.66	455.95	-3.72	5.32	-3.75	92.00	138.04	0.24
549.00	0.84	143.08	548.94	-4.79	6.10	-4.82	93.00	143.85	0.06
642.00	0.75	154.59	641.93	-5.88	6.77	-5.92	93.00	148.51	0.20
734.00	0.70	170.94	733.92	-6.98	7.12	-7.02	92.00	162.48	0.23
825.00	0.70	186.15	824.91	-8.08	7.14	-8.13	91.00	178.54	0.20
917.00	0.88	201.26	916.90	-9.30	6.83	-9.34	92.00	194.57	0.30
1,009.00	0.88	210.58	1,008.89	-10.57	6.21	-10.60	92.00	205.92	0.16
1,083.00	1.01	207.50	1,082.88	-11.63	5.62	-11.67	74.00	208.93	0.19
1,248.00	1.05	216.73	1,247.86	-14.14	4.05	-14.16	165.00	212.20	0.10
1,433.00	0.75	35.06	1,432.85	-14.50	3.73	-14.53	185.00	220.89	0.97
1,526.00	0.26	35.85	1,525.85	-13.83	4.20	-13.86	93.00	35.26	0.53
1,618.00	0.13	44.82	1,617.84	-13.59	4.40	-13.62	92.00	38.84	0.14
1,713.00	0.40	59.76	1,712.84	-13.35	4.76	-13.38	95.00	56.11	0.29
1,901.00	1.76	97.46	1,900.81	-13.39	8.19	-13.44	188.00	90.74	0.78
2,090.00	3.91	89.91	2,089.57	-13.76	17.51	-13.86	189.00	92.25	1.15
2,279.00	5.58	103.62	2,277.92	-15.91	32.89	-16.11	189.00	97.97	1.06
2,468.00	7.16	105.02	2,465.74	-21.13	53.20	-21.44	189.00	104.41	0.84
2,656.00	9.23	110.03	2,651.82	-29.33	78.68	-29.80	188.00	107.84	1.16
2,846.00	10.77	110.47	2,838.92	-40.76	109.63	-41.41	190.00	110.27	0.81
2,940.00	9.98	108.45	2,931.39	-46.41	125.59	-47.15	94.00	109.50	0.93
3,035.00	9.58	107.04	3,025.01	-51.33	140.95	-52.17	95.00	107.76	0.49
3,130.00	10.11	107.57	3,118.61	-56.16	156.46	-57.09	95.00	107.31	0.57
3,224.00	11.16	107.84	3,210.99	-61.44	172.98	-62.47	94.00	107.71	1.12



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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	CL (usft)	CL Azi (°)	DLeg (°/100ft)
3,319.00	10.90	108.19	3,304.24	-67.06	190.27	-68.19	95.00	108.01	0.28
3,413.00	10.77	107.66	3,396.56	-72.50	207.08	-73.73	94.00	107.93	0.17
3,508.00	9.80	107.75	3,490.03	-77.66	223.24	-78.98	95.00	107.70	1.02
3,602.00	9.01	108.71	3,582.77	-82.46	237.83	-83.87	94.00	108.21	0.86
3,697.00	9.98	112.23	3,676.47	-87.96	252.50	-89.46	95.00	110.56	1.19
3,792.00	10.81	113.99	3,769.91	-94.70	268.26	-96.29	95.00	113.14	0.94
3,886.00	10.20	111.88	3,862.33	-101.38	284.03	-103.07	94.00	112.97	0.77
3,981.00	8.97	111.70	3,956.00	-107.25	298.72	-109.03	95.00	111.80	1.30
4,076.00	9.54	113.55	4,049.77	-113.14	312.82	-114.99	95.00	112.65	0.68
4,170.00	9.93	116.01	4,142.41	-119.81	327.24	-121.75	94.00	114.80	0.61
4,265.00	9.85	113.72	4,236.00	-126.67	342.05	-128.69	95.00	114.87	0.42
4,359.00	10.86	112.32	4,328.47	-133.26	357.60	-135.38	94.00	112.99	1.11
4,453.00	10.33	113.37	4,420.87	-139.97	373.53	-142.18	94.00	112.83	0.60
4,548.00	9.36	112.93	4,514.47	-146.36	388.46	-148.66	95.00	113.16	1.02
4,642.00	10.77	113.55	4,607.02	-152.85	403.55	-155.24	94.00	113.26	1.50
4,737.00	12.04	114.25	4,700.14	-160.46	420.72	-162.96	95.00	113.92	1.34
4,831.00	11.87	116.54	4,792.10	-168.81	438.31	-171.41	94.00	115.39	0.54
4,926.00	9.71	115.39	4,885.42	-176.61	454.29	-179.30	95.00	116.02	2.28
4,974.00	9.14	115.22	4,932.77	-179.97	461.40	-182.71	48.00	115.31	1.19
5,114.00	7.25	115.83	5,071.33	-188.56	479.41	-191.40	140.00	115.49	1.35
5,208.00	8.00	115.39	5,164.50	-193.95	490.66	-196.86	94.00	115.60	0.80
5,303.00	8.79	114.43	5,258.48	-199.78	503.24	-202.77	95.00	114.89	0.84
5,397.00	8.84	117.59	5,351.37	-206.10	516.18	-209.16	94.00	116.01	0.52
5,492.00	9.67	118.29	5,445.14	-213.26	529.68	-216.40	95.00	117.96	0.88
5,586.00	11.08	114.34	5,537.60	-220.73	544.86	-223.96	94.00	116.18	1.68
5,681.00	11.43	111.88	5,630.77	-228.00	561.91	-231.33	95.00	113.09	0.63
5,775.00	11.03	111.09	5,722.97	-234.70	578.94	-238.14	94.00	111.49	0.46



Wellbenders

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5,869.00	10.99	108.71	5,815.24	-240.81	595.82	-244.34	94.00	109.90	0.49
5,964.00	10.37	108.54	5,908.59	-246.44	612.50	-250.07	95.00	108.63	0.65
6,058.00	9.45	110.12	6,001.19	-251.78	627.77	-255.50	94.00	109.29	1.02
6,153.00	8.57	109.86	6,095.02	-256.87	641.75	-260.67	95.00	110.00	0.93
6,247.00	9.19	107.57	6,187.89	-261.51	655.50	-265.40	94.00	108.68	0.76
6,341.00	9.23	105.55	6,280.68	-265.80	669.91	-269.77	94.00	106.56	0.35
6,436.00	9.10	103.97	6,374.47	-269.66	684.54	-273.71	95.00	104.77	0.30
6,530.00	9.05	101.77	6,467.29	-272.96	699.00	-277.10	94.00	102.87	0.37
6,625.00	9.10	100.98	6,561.10	-275.92	713.69	-280.15	95.00	101.37	0.14
6,720.00	9.23	100.10	6,654.89	-278.68	728.56	-283.00	95.00	100.54	0.20
6,814.00	8.88	99.31	6,747.72	-281.18	743.14	-285.58	94.00	99.71	0.40
6,908.00	7.12	104.23	6,840.80	-283.78	755.95	-288.26	94.00	101.50	2.01
7,003.00	6.29	106.52	6,935.15	-286.71	766.65	-291.26	95.00	105.30	0.92
7,098.00	5.89	106.69	7,029.61	-289.59	776.31	-294.19	95.00	106.60	0.42
7,192.00	4.79	110.38	7,123.20	-292.34	784.60	-296.99	94.00	108.35	1.23
7,287.00	3.47	113.81	7,217.96	-294.88	790.95	-299.57	95.00	111.82	1.41
7,382.00	2.15	120.40	7,312.84	-296.95	795.12	-301.66	95.00	116.33	1.43
7,476.00	1.01	137.45	7,406.80	-298.45	797.20	-303.18	94.00	125.83	1.30
7,571.00	1.23	144.75	7,501.78	-299.90	798.36	-304.63	95.00	141.46	0.28
7,666.00	1.32	146.42	7,596.76	-301.64	799.55	-306.38	95.00	145.61	0.10
7,761.00	1.14	166.90	7,691.74	-303.48	800.37	-308.22	95.00	155.90	0.50
7,855.00	0.92	194.23	7,785.72	-305.12	800.40	-309.86	94.00	179.08	0.57
7,950.00	0.75	204.78	7,880.71	-306.42	799.95	-311.16	95.00	198.97	0.24
8,044.00	0.92	208.82	7,974.70	-307.64	799.33	-312.38	94.00	207.01	0.19
8,139.00	0.75	193.09	8,069.69	-308.92	798.82	-313.65	95.00	201.76	0.30
8,233.00	0.88	184.12	8,163.69	-310.23	798.63	-314.97	94.00	188.25	0.19
8,327.00	1.14	199.33	8,257.67	-311.84	798.27	-316.57	94.00	192.71	0.40



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8,422.00	1.23	188.52	8,352.65	-313.74	797.80	-318.47	95.00	193.72	0.25
8,516.00	1.05	185.44	8,446.63	-315.59	797.57	-320.32	94.00	187.10	0.20
8,706.00	1.19	184.74	8,636.60	-319.29	797.24	-324.02	190.00	185.07	0.07
8,800.00	1.27	189.84	8,730.57	-321.29	796.98	-326.01	94.00	187.37	0.14
8,895.00	1.41	183.25	8,825.55	-323.49	796.74	-328.22	95.00	186.37	0.22
8,990.00	1.41	187.29	8,920.52	-325.82	796.52	-330.54	95.00	185.27	0.10
9,084.00	1.23	193.00	9,014.49	-327.95	796.15	-332.67	94.00	189.95	0.24
9,179.00	1.27	210.23	9,109.47	-329.85	795.39	-334.57	95.00	201.75	0.40
9,274.00	1.19	217.26	9,204.45	-331.55	794.26	-336.26	95.00	213.63	0.18
9,368.00	0.92	224.20	9,298.43	-332.87	793.15	-337.57	94.00	220.29	0.32
9,463.00	1.49	223.15	9,393.41	-334.31	791.77	-339.01	95.00	223.55	0.60
9,558.00	0.57	257.16	9,488.40	-335.32	790.46	-340.01	95.00	232.38	1.12
9,653.00	1.01	257.16	9,583.39	-335.61	789.19	-340.29	95.00	257.16	0.46
9,747.00	1.63	260.24	9,677.36	-336.02	787.06	-340.69	94.00	259.06	0.66
9,841.00	2.11	246.79	9,771.31	-336.93	784.15	-341.58	94.00	252.65	0.69
9,935.00	1.98	246.26	9,865.25	-338.27	781.08	-342.90	94.00	246.53	0.14
10,029.00	2.24	234.84	9,959.19	-339.98	778.09	-344.59	94.00	240.20	0.52
10,123.00	1.93	214.80	10,053.13	-342.34	775.68	-346.93	94.00	225.57	0.84
10,218.00	2.64	218.67	10,148.05	-345.36	773.40	-349.94	95.00	217.04	0.76
10,313.00	2.64	233.52	10,242.95	-348.37	770.28	-352.93	95.00	226.10	0.72
10,407.00	2.77	247.67	10,336.85	-350.52	766.43	-355.06	94.00	240.77	0.72
10,502.00	2.59	247.58	10,431.74	-352.21	762.33	-356.73	95.00	247.63	0.19
10,571.00	1.80	225.78	10,500.69	-353.56	760.11	-358.06	69.00	238.66	1.65
10,597.00	1.71	228.86	10,526.68	-354.10	759.52	-358.60	26.00	227.28	0.50
KOP @ 10597.00' MD 21.22' FSL 1901.90' FEL									
10,692.00	5.49	7.90	10,621.56	-350.53	759.08	-355.02	95.00	352.93	7.23
10,787.00	12.66	16.87	10,715.31	-336.04	762.73	-340.56	95.00	14.15	7.67



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10,882.00	18.95	17.92	10,806.67	-311.38	770.51	-315.95	95.00	17.50	6.63
10,976.00	31.30	8.87	10,891.65	-272.57	779.00	-277.18	94.00	12.35	13.72
11,071.00	52.09	358.68	10,962.27	-209.96	781.98	-214.60	95.00	2.72	22.96
11,101.65	60.00	355.20	10,979.38	-184.60	780.59	-189.23	30.65	356.86	27.47
FTP @ 11101.65' MD 190.27' FSL 1880.32' FEL									
11,102.00	60.09	355.16	10,979.56	-184.30	780.56	-188.93	0.35	355.18	27.47
11,193.00	75.08	352.00	11,014.16	-100.97	771.06	-105.54	91.00	353.49	16.78
11,288.00	81.23	354.11	11,033.66	-8.72	759.84	-13.23	95.00	353.07	6.83
11,382.00	85.93	358.24	11,044.17	84.44	753.63	79.96	94.00	356.18	6.64
11,477.00	87.03	0.26	11,050.00	179.24	752.39	174.77	95.00	359.25	2.42
11,572.00	86.68	0.61	11,055.21	274.10	753.11	269.62	95.00	0.43	0.52
11,666.00	90.11	1.93	11,057.85	368.02	755.19	363.53	94.00	1.27	3.91
11,761.00	89.23	1.75	11,058.39	462.97	758.24	458.46	95.00	1.84	0.95
11,856.00	91.96	1.40	11,057.41	557.92	760.85	553.39	95.00	1.58	2.90
11,951.00	92.57	0.96	11,053.65	652.82	762.81	648.29	95.00	1.18	0.79
12,045.00	91.69	0.70	11,050.16	746.75	764.17	742.20	94.00	0.83	0.98
12,141.00	90.11	1.14	11,048.65	842.72	765.71	838.16	96.00	0.92	1.71
12,235.00	90.51	0.96	11,048.14	936.70	767.43	932.13	94.00	1.05	0.47
12,330.00	90.51	0.17	11,047.30	1,031.69	768.37	1,027.12	95.00	0.56	0.83
12,425.00	90.77	0.26	11,046.24	1,126.69	768.73	1,122.11	95.00	0.21	0.29
12,520.00	90.86	0.26	11,044.89	1,221.68	769.16	1,217.09	95.00	0.26	0.09
12,614.00	91.43	0.61	11,043.01	1,315.65	769.87	1,311.06	94.00	0.43	0.71
12,709.00	90.46	0.96	11,041.44	1,410.63	771.17	1,406.03	95.00	0.79	1.09
12,804.00	90.68	0.52	11,040.50	1,505.62	772.40	1,501.01	95.00	0.74	0.52
12,899.00	90.29	1.58	11,039.69	1,600.60	774.14	1,595.98	95.00	1.05	1.19
12,993.00	90.11	1.40	11,039.36	1,694.56	776.59	1,689.93	94.00	1.49	0.27
13,087.00	88.75	0.52	11,040.30	1,788.54	778.16	1,783.89	94.00	0.96	1.72



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Site: Flagler 8 Fed
Well: #20H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #20H
TVD Reference: RKB=30' @ 3476.00usft (Cactus 108)
MD Reference: RKB=30' @ 3476.00usft (Cactus 108)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WBDS_SQL_2

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	CL (usft)	CL Azi (°)	DLeg (°/100ft)
13,178.00	88.70	0.61	11,042.32	1,879.52	779.06	1,874.86	91.00	0.56	0.11
13,273.00	89.58	0.70	11,043.75	1,974.50	780.14	1,969.83	95.00	0.66	0.93
13,367.00	90.20	0.52	11,043.93	2,068.49	781.14	2,063.82	94.00	0.61	0.69
13,462.00	90.37	359.99	11,043.46	2,163.49	781.57	2,158.81	95.00	0.26	0.59
13,557.00	90.86	0.08	11,042.44	2,258.48	781.62	2,253.81	95.00	0.03	0.52
13,652.00	92.31	0.17	11,039.81	2,353.45	781.83	2,348.76	95.00	0.12	1.53
13,746.00	89.80	359.99	11,038.08	2,447.42	781.96	2,442.74	94.00	0.08	2.68
13,841.00	89.76	359.64	11,038.44	2,542.42	781.66	2,537.74	95.00	359.82	0.37
13,936.00	88.22	358.94	11,040.12	2,637.40	780.48	2,632.72	95.00	359.29	1.78
14,031.00	88.62	359.03	11,042.74	2,732.34	778.80	2,727.67	95.00	358.99	0.43
14,125.00	88.92	358.76	11,044.76	2,826.30	776.98	2,821.64	94.00	358.89	0.43
14,220.00	88.75	358.24	11,046.69	2,921.25	774.50	2,916.60	95.00	358.50	0.58
14,315.00	89.05	358.32	11,048.51	3,016.19	771.65	3,011.56	95.00	358.28	0.33
14,409.00	89.45	358.15	11,049.74	3,110.14	768.75	3,105.52	94.00	358.23	0.46
14,503.00	89.93	358.15	11,050.25	3,204.09	765.72	3,199.49	94.00	358.15	0.51
14,598.00	90.68	358.15	11,049.74	3,299.04	762.65	3,294.45	95.00	358.15	0.79
14,692.00	91.65	358.68	11,047.83	3,392.98	760.05	3,388.41	94.00	358.41	1.18
14,786.00	89.54	358.76	11,046.86	3,486.95	757.95	3,482.39	94.00	358.72	2.25
14,881.00	90.24	359.29	11,047.04	3,581.93	756.34	3,577.38	95.00	359.03	0.92
14,975.00	90.73	359.11	11,046.24	3,675.92	755.02	3,671.37	94.00	359.20	0.56
15,070.00	91.21	359.11	11,044.63	3,770.89	753.55	3,766.35	95.00	359.11	0.51
15,165.00	88.70	359.47	11,044.71	3,865.88	752.37	3,861.35	95.00	359.29	2.67
15,260.00	89.14	359.47	11,046.50	3,960.86	751.49	3,956.33	95.00	359.47	0.46
15,354.00	89.36	359.38	11,047.73	4,054.84	750.55	4,050.32	94.00	359.42	0.25
15,449.00	90.15	359.11	11,048.14	4,149.83	749.30	4,145.31	95.00	359.24	0.88
15,544.00	91.08	359.64	11,047.12	4,244.82	748.26	4,240.31	95.00	359.37	1.13
15,638.00	91.65	359.55	11,044.88	4,338.79	747.60	4,334.28	94.00	359.60	0.61



Wellbenders

End Of Well Report

Company: Devon Energy
Project: Lea Co., NM (Nad83 - East Zone)
Site: Flagler 8 Fed
Well: #20H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #20H
TVD Reference: RKB=30' @ 3476.00usft (Cactus 108)
MD Reference: RKB=30' @ 3476.00usft (Cactus 108)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WBDS_SQL_2

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	CL (usft)	CL Azi (°)	DLeg (°/100ft)
15,732.00	92.13	359.82	11,041.78	4,432.74	747.08	4,428.23	94.00	359.68	0.59
15,827.00	92.66	359.99	11,037.81	4,527.66	746.92	4,523.14	95.00	359.90	0.59
15,922.00	93.45	0.17	11,032.74	4,622.52	747.06	4,618.01	95.00	0.08	0.85
16,017.00	94.07	0.52	11,026.51	4,717.31	747.63	4,712.79	95.00	0.34	0.75
16,075.00	94.55	0.52	11,022.16	4,775.15	748.15	4,770.62	58.00	0.52	0.83
16,104.50	94.55	0.52	11,019.82	4,804.55	748.42	4,800.03	29.50	0.52	0.00
LTP @ 16104.50' MD 100' FNL 1883.13' FEL									
16,141.00	94.55	0.52	11,016.92	4,840.94	748.75	4,836.41	36.50	0.52	0.00
BHL @ 16141.00' MD 65.55' FNL 1882.53' FEL									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
10,597.00	10,526.68	-354.10	759.52	KOP @ 10597.00' MD 21.22' FSL 1901.90' FEL
11,101.65	10,979.38	-184.60	780.59	FTP @ 11101.65' MD 190.27' FSL 1880.32' FEL
16,104.50	11,019.82	4,804.55	748.42	LTP @ 16104.50' MD 100' FNL 1883.13' FEL
16,141.00	11,016.92	4,840.94	748.75	BHL @ 16141.00' MD 65.55' FNL 1882.53' FEL

Checked By: _____ Approved By: _____ Date: _____



HOBBS OCD

JAN 23 2020

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I **Larry Wright**, certify that I am employed by **Wellbenders Directional Services**. That I did on the day(s) of **09/28/19** thru **10/15/19** conduct or supervise the taking of a **MWD Survey** from a depth of **210'** to a depth of **16,141'**; that the data is true, correct, complete and within the limitations of the tool as set forth by **Wellbenders Directional Services**; that I am authorized and qualified to make this report; that this survey was conducted at the request of **Devon Energy** for the **Flagler 8 Fed Com #20H** API No. **30-025-45003** in **Lea County, New Mexico**; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by **Wellbenders Directional Services**.

Larry Wright

*13901 Hwy 105 W., Conroe, Texas
77304
PH 936-539-9602*